

Ammonium persulfate

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Ammonium persulfate $(\text{NH}_4)_2\text{S}_2\text{O}_8$ is a strong oxidizing agent. It is very soluble in water; the dissolution of the salt in water is endothermic. It is a radical initiator. It is used to etch copper on printed circuit boards as an alternative to ferric chloride solution.^[1] It is also used along with tetramethylethylenediamine to catalyze the polymerization of acrylamide in making a polyacrylamide gel.

Ammonium persulfate was prepared by H. Marshall by the method used for the preparation of potassium persulfate — by the electrolysis of a solution of ammonium sulfate and sulfuric acid.^[2]

Ammonium persulfate is the main component of Nochromix. On dissolving in sulfuric acid, it is used to clean laboratory glassware as a metal-free alternative to chromic acid baths.^[3] It is also a standard ingredient in western blot gels and hair bleach.

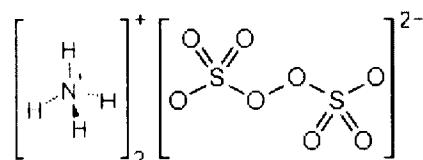
Safety

Airborne dust may be irritating to eye, nose, throat, lung and skin upon contact. Exposure to high levels of dust may cause difficulty in breathing.^[4]

References

1. ^ "Ammonium Persulphate: Copper Etchant"

Ammonium persulfate



Other names

Ammonium peroxydisulfate

Identifiers

CAS number 7727-54-0 ✓

ChemSpider 56400 ✓

UNII 22QF6L357F ✓

EC number 231-786-5

UN number 1444

RTECS number SE0350000

SMILES

O=S(=O)([O-])OOS([O-])(=O)=O.[NH4+].[NH4+]

[NH4+].[NH4+].[O-]S(=O)(=O)OOS(=O)(=O)[O-]

InChI

InChI=1S/2H3N.H2O8S2/c;;1-9(2,3)7-8-10(4,5)6/h2*1H3;(H,1,2,3)(H,4,5,6)✓

Key: ROOXNKNUYICQNP-UHFFFAOYSA-N ✓

InChI=1/2H3N.H2O8S2/c;;1-9(2,3)7-8-10(4,5)6/h2*1H3;(H,1,2,3)(H,4,5,6)✓

Key: ROOXNKNUYICQNP-UHFFFAOYAL

Properties

Molecular formula $(\text{NH}_4)_2\text{S}_2\text{O}_8$

Molar mass 228.18 g/mol

Appearance white to yellowish crystals

Density 1.98 g/cm³

Melting point 120 °C (393 K) decomp.

Solubility in 80 g/100 ml (25 °C)
water**Hazards**MSDS External MSDS
(<http://www.jtbaker.com/msds/englishhtml/a6096.htm>)

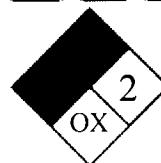
EU Index 016-060-00-6

EU Oxidant (O)
classification Harmful (Xi)
Irritant (Xi)

R-phrases R8, R22, R36/37/38, R42/43

S-phrases (S2), S22, S24, S26, S37

NFPA 704

LD₅₀ 689 mg/kg, oral (rat)**Related compounds**

Other anions Ammonium thiosulfate

Ammonium sulfite

Ammonium sulfate

Other cations Sodium persulfate
Potassium persulfate

✓ (what is this?) (verify)

Except where noted otherwise, data are given for materials in their standard state (at 25 °C, 100 kPa)

Infobox references

[\(<http://www.mgchemicals.com/products/410.html>\)](http://www.mgchemicals.com/products/410.html) . MG Chemicals.<http://www.mgchemicals.com/products/410.html>.

2. ^ Hugh Marshall (1891). "LXXIV. Contributions from the Chemical Laboratory of the University of Edinburgh. No. V. The persulphates". *J. Chem. Soc., Trans.* **59**: 771. doi:10.1039/CT8915900771 (<http://dx.doi.org/10.1039%2FCT8915900771>).
3. ^ "Nochromix" (<http://www.sigmaaldrich.com/catalog/search/SpecificationSheetPage/ALDRICH/328693>) . Sigma-Aldrich. <http://www.sigmaaldrich.com/catalog/search/SpecificationSheetPage/ALDRICH/328693>. Retrieved 2008-03-01.
4. ^ [1] (http://msds.fmc.com/msds/100000010587-MSDS_US-E.pdf) FMC Corporation, MSDS sheet dated: 06/26/2009

External links

- International Chemical Safety Card 0632

(http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/_icsc06/icsc0632.htm)

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Categories: Persulfates | Peroxides | Ammonium compounds | Oxidizing agents | Inorganic compound stubs

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